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Causes of Wide QRS Tachycardia

- Aberrant conduction (RBBB, LBBB with or without fascicular block)
- Myocardial VT (fibrosis, scarring)
- Bundle branch reentrant VT (HPS disease)
- Nonspecific IVCD (extensive scarring electrolyte abnormality, antiarrhythmic drugs)

continued ...
<table>
<thead>
<tr>
<th>Condition</th>
<th>LBBB-Type QRS</th>
<th>RBBB-Type QRS</th>
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<tbody>
<tr>
<td>Ventricular Tachycardia</td>
<td>V1</td>
<td>V1</td>
</tr>
<tr>
<td>SVT with Aberration</td>
<td>V6</td>
<td>V6</td>
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<tr>
<td>SVT with Pre-excitation (WPW)</td>
<td>V1</td>
<td>V1</td>
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<td>SVT with Base-line Abnormal ECG</td>
<td>V6</td>
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<td>SVT with Hyperkalemia</td>
<td>V1</td>
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<tr>
<td>Ventricular Pacing</td>
<td>V6</td>
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</table>
Dx Gold Standard
His Bundle Electrograms

Ab-C, non-specific IVCD, BBR, can be easily diagnosed by HV= or > than HV interval of sinus beats.
CL = 310 msec.
Causes of Wide QRS Tachycardia
(Continued)

- Ventricular preexcitation
- Ventricular pacing invisible artifact
- Mechanical ventricular stimulation by ICD or pacemaker leads
Preexcited Tachycardia

Definition:
Wide QRS where ventricular activation is exclusively via the AP (fast conducting AVP or slow conducting AFP).
Distinction Between VT and Preexcited Tachycardia

All preexcited tachycardias are supraventricular in nature. Therefore, $A=V$ or $A>V$, while the reverse is true for VT from any mechanism.
When there is a 1:1 AV relationship the following are helpful:

- In preexcited tachycardia, overdrive pacing (single or multiple extrastimuli will cause) VA dissociation, resetting or termination with or without VA block / with or without a change in atrial activation sequence.

continued ...
Distinction Between VT and Preexcited Tachycardia (Continued)

- Simultaneous A & V Pace above tach CL, stop and observe whether RC start with A or V
- Continuation tachycardia with AV or VA block (spontaneous or induced)
- At onset or during tachycardia AVVA or VAAV sequence.
Preexcited Tachycardias

Some of the most complex reentry circuits. Excluding atrial fibrillation, analysis of the exact routes of reentry among various types is most challenging.
Schemas: Disclaimers

- Not all possible combinations of circuits are depicted
- The location of AP depicted is random
- Site of HPS block, linking etc. is not exact
- Straight vs. wavy lines simply depict fast and slow conduction and not the magnitude.
Helpful Recording & Maneuvers

Preexcited Tachycardias

To distinguish bystander vs. active participants of AP.

- Eccentric atrial activation – must have HB, proximal & distal CS and right atrial recordings (AVNRT, ANT-SEP AP, low septal atrial T & VT)
- Wide to narrow QRS or vice versa and no change in CL

continued
Helpful Recording & Maneuvers (Continued)

- Change in CL related to retrograde HPS block and resolution.
- H-RB, H-LB sequence during tachycardia compared to sinus
- Response to timed late and early atrial or ventricular extrastimuli
Helpful Recording & Maneuvers
(Continued)

- Response to specific drugs
- Termination of preexcited tachycardia during ablation (A is the last signal)
Figures: Important Points

- Clear onset or end of atrial potential critical for distinction between normal eccentric atrial activation
- RA, proximal and distal CS, His & BB potentials should be recorded and be identifiable
- AVN & HPS is always involved regardless of the circuit of preexcited tachycardia (actively or passively)
- Use of IV drugs should be avoided until other methods are exhausted except for those with a very short half life.